Wildlife Biological Evaluation

Lower Fly Stream Restoration

La Grande Ranger District, Wallowa-Whitman National Forest

November, 2019

Authors:

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Introduction

An endangered species is an animal or plant species listed under the Endangered Species Act that is in danger of extinction throughout all or a significant portion of its range. A threatened species is an animal or plant species listed under the Endangered Species Act that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. A sensitive species is an animal or plant species identified by the Forest Service Regional Forester for which species viability is a concern either a) because of significant current or predicted downward trend in population numbers or density, or b) because of significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. The R6 Sensitive Species list pertinent to this project is dated August, 2015. Threatened, endangered, and sensitive species effects are summarized in this report by TES status and species.

As part of the National Environmental Policy Act (NEPA) decision-making process, biological evaluations (BE) are required to determine how proposed FS management activities may affect Proposed, Endangered, Threatened, or Sensitive (PETS) species or their habitats (U.S. Forest Service Manual [FSM] 2670). This evaluation presents existing information on PETS species and their habitat in the project area, and describes the anticipated direct, indirect, and cumulative effects resulting from the proposed project. The review is conducted to ensure that FS actions do not contribute to the loss of species viability or cause a species to move toward federal listing (43 U.S.C. 1707 et seq). Threatened and Endangered species are managed under authority of the Federal Endangered Species Act (ESA) (36 U.S.C. 1531-1544) and the National Forest Management Act (NFMA) (16 U.S.C. 1600-1614). The ESA requires Federal agencies make certain all actions they authorize, fund, or carry out will not likely jeopardize the continued existence of any threatened or endangered species. Sensitive species are those recognized by the Region 6 Regional Forester as needing special management to meet NFMA obligations. FS policy requires a BE to determine possible effects to sensitive species from proposed management activities.

PRE FIELD REVIEW

The following proposed, endangered, threatened, or sensitive species (PETS) of wildlife are listed on the Regional Forester's Sensitive Species List (March 2019; Table 1). Only those PETS, or their habitats, known or suspected to occur in or immediately adjacent to the analysis area are further addressed in this BE.

Common Name	Scientific Name	USFWS Status	USFS Status	WWNF Occurrence/ Lower Fly Occurrence	Addressed Further in this BE
Amphibians					
ROCKY MOUNTAIN TAILED FROG	*Ascaphus montanus*		SEN	D/N	
Tailed frogs are strongly adapted to cold water conditions. They occur in very cold, fast-flowing streams that contain large cobble or boulder substrates, little silt, often darkly shaded, and less than 20ºC (Bull and Carter 1996). Tailed frogs have not been documented in the project area and suitable habitat does not exist within the project area.					
COLUMBIA SPOTTED FROG	*Rana leutriventris*		SEN	D/N	X
This species is found at aquatic sites in a variety of vegetation types, from grasslands to forests (Csuti et al. 1997). There are no known breeding ponds within the project area but adult frogs have been documented using the stream.					
Birds					
UPLAND SANDPIPER	*Bartramia longicauda*		SEN	S/N	
Suitable habitats in Oregon consist of large montane meadows ranging from 1,000 to 30,000 acres, generally surrounded by lodgepole pine (Marshall et al. 2003). The project area lacks suitable habitat, and no known sightings are reported for the area.					
GREATER SAGE-GROUSE	*Centrocercus urophasianus*		SEN	S/N	
Suitable habitats are low elevations associated with sagebrush. The project area lacks suitable habitat and there are no known sightings for sage grouse.					
BUFFLEHEAD	*Bucephala albeola*		SEN	S/N	
Known breeding range in Oregon is restricted to the Cascades. Breeding habitat consists of high-elevation lake or pond habitat surrounded by forest (ODFW 2006). The project area lacks suitable habitat, and no known sightings are reported for the area.					
BALD EAGLE	*Haliaeetus Leucocephalus*	DELISTED	SEN	D/N	
Nesting habitat consists of large conifers within 1 km of water containing adequate supply of medium to large fish (Johnsgard 1990). No known nest sites exist within the project area. The project area does contain potential foraging and roosting habitat and the potential for species occurrence. No roosting habitat will be affected by project activities.					
LEWIS' WOODPECKER	*Melanerpes Lewis*		SEN	D/H	
Primary breeding habitats include open ponderosa pine, riparian cottonwood, and logged or burned pine (Tobalske 1997). No sightings are reported for the project area but potential habitat exists.					
WHITE-HEADED WOODPECKER	*Picoides Albolarvatus*		SEN	D/H	
Nesting habitat consists of open-canopy stands with mature and overmature ponderosa pine (Buchanon et al. 2003). Large structure ponderosa pine will not be affected and there would be no impacts to the White-headed woodpecker.					
COLUMBIAN SHARP-TAILED GROUSE	*Tympanuchus Phasianellus Columbianus*		SEN	D/N	
Potential habitats consist of bunchgrass prairies interspersed with stam bottoms containing deciduous shrubs and trees. The species was extirpated from Oregon, but has been reintroduced into northern Wallowa County (ODFW 2010). No sightings or potential suitable habitat occur within or adjacent to the project area. Occurrence within the project area is unlikely.					

MAMMALS					
CANADA LYNX	*Lynx Canadensis*	THREATENED		D/N	X
The species is classified as "not present" on the WWNF					
GRAY WOLF	*Canis Lupus*	DELISTED	SEN	D/H	
Gray wolves are habitat generalists inhabiting a variety of plant communities, typically containing a mix of forested and open areas with a variety of topographic features. Wolves have the potential to travel through the area but no den sites are known and project activities would not influence prey ability or habitat.					
CALIFORNIA WOLVERINE	*Gulo Gulo Luteus*	CANDIDATE	SEN	D/H	
Preferred habitat consists of alpine and subalpine areas with little or no human presence. There is potential for wolverines to travel through the project area but the Lower Fly project area does not contain suitable habitat for breeding.					
TOWNSENDS BIG-EARED BAT	Corynorhinus townsendii		SEN	D/N	
This bat roosts in buildings, caves, mines, and bridges and the presence of suitable roost sites is more important than the vegetation type in determining the distribution of this bat. There are no known roost sites for Townsends within the Lower Fly project area.					
SPOTTED BAT	Euderma maculatum		SEN	S/N	
Spotted bats primarily rely on crevices and caves in tall cliffs for roosting which likely determine their distribution. The Lower Fly project area lacks tall cliffs, making occupancy unlikely.					
FRINGED MYOTIS	Myotis thysanodes		SEN	D/H	
This bat is found throughout much of western North America and has been documented on the Wallowa-Whitman. Roosting in decadent trees and snags is common throughout its range. The presence of large trees within the project area makes occurrence likely but habitat will not be affected.					
MOLLUSKS					
FIR PINWHEEL	*Radiodiscus Albietum*		SEN	D/N	
Most often found in moist and rocky Douglas-fir forest at mid-elevations in valleys and ravines (Frest and Johannes 1995). Known distribution in Oregon is limited to extreme NE (above Weston, Umatilla Co.; Duncan 2008). Surveys conducted on the Umatilla and Wallowa-Whitman NF in 2016 and 2018 found this species in multiple sites within dry and moist forest associated high canopy cover (<65%). The lack of OFMS within the project area makes this species unlikely to occur.					
COLUMBIA GORGE OREGONIAN	*Cryptomastix hendersoni*		SEN	S/N	
Land snail found in rather open and dry large-scale basalt taluses, generally at lower elevations. Most colonies occur at slope bases along the major river corridors, not in major tributaries. Associated vegetation includes *Celtus, Artemisia, Prunus, Balsamorrhiza,* and *Seligeria*. Surrounding vegetation is generally sage scrub. Generally in steep north or east-facing taluses, often only at the base. Occasionally found in meta sedimantary taluses as well (Frest and Johannes 1995). Lack of basalt talus makes the occurrence of this species unlikely.					
SHINY TIGHTCOIL	*Pristiloma wascoense*		SEN	D/N	X
Most sites for this species are in ponderosa pine and douglas fir forests at moderate to high elevations. Quaking aspen also provides habitat. Other Pristiloma species in the ecoregion are known to prefer moist microsites such as basalt talus accumulations, usually with riparian influence (Frest and Johannes 1995). Recent surveys across the Wallowa-Whitman in 2016 and 2018 found this species in a number of sites within dry and moist forest associated with high canopy cover (<65%). The Fly Creek project has the potential for habitat.					
THINLIP TIGHTCOIL	Pristiloma idahoense		SEN	D/H	x
This species is somewhat mesophilic, generally occurring at rather low elevations in ponderosa pine (*Pinus ponderosa)* and Douglas fir (*Pseudotsuga menziesii*) forests (Frest & Johannes 1995), as well as in cedar (*Cedrus*) and hemlock (*Tsuga*) forests (Burke 2009, *pers. comm.*). In general, moist valley, ravine, gorge, or talus sites are preferred, *i.e.* low on a slope and near permanent or persistent water, but not normally subject to regular or catastrophic flooding (Frest & Johannes 1995). Persistence of moisture for at least part of the year increases habitat suitability (Frest & Johannes 1995). The Fly Creek project has the potential for habitat.					

POPLAR OREGONIAN	*Cryptomastix populi*		SEN	S/N	
Land snail found in rather open and dry large-scale basalt taluses, generally at lower elevations. Most colonies occur at slope bases along the major river corridors, not in major tributaries. Associated vegetation includes *Celtus, Artemisia, Prunus, Balsamorrhiza,* and *Seligeria*. Surrounding vegetation is generally sage scrub. Generally in steep north or east-facing taluses, often only at the base. Occasionally found in meta sedimantary taluses as well (Frest and Johannes 1995). Lack of large scale basalt talus makes the occurrence of this species unlikely.					
UMATILLA MEGOMPHOX	*Megomphix lutarius*		SEN	D/N	
Land snail found within talus, closely associated with intact conifer forests, riparian areas or both. Thought to potentially be extinct due to lack of relocations, surveys conducted on the Umatilla in 2012 and within the La Grande district on the Wallowa-Whitman in 2016 found this species in 3 separate sites. Lack of talus within the project area indicates lack of suitable habitat.					
BLUE MOUNTAINSNAIL	*Oreohelix strigosa delicata*		SEN	S/N	
Oreohelix strigosa is a snail of riparian habitat and open forest, typically found in rock talus, shrubby areas, or under forest litter (Burke 2013) fairly open ponderosa pine and Douglas-fir forest with some deciduous understory and common grasses. Refugia sites for aestivation are assumed to be located under more stable rock schist and woody debris. Surveys conducted on the Wallowa-Whitman did not locate this species, though another thought to be undescribed species of Oreohelix was found on the La Grande district within a talus slope above a riparian area. It is unlikely this species occurs within the project area, due to its rarity and lack of talus.					
INTERMOUNTAIN SULPHUR	*Colias occidentalis pseudochristina*		SEN	D/N	
Suitable habitat consists of sagebrush with scattered Ponderosa Pine. No sightings have been documented and suitable habitat is not available in the project area.					
YUMA SKIPPER	*Ochlodes yuma*		SEN	D/N	
This species has been documented along the Imnaha River in Wallow Co. It is closely associated with its host plant Phragmites australis. Lack of the presence of the host species within the project area makes occurrence highly unlikely.					
WESTERN BUMBLEBEE	*Bombus occidentalis*		SEN	D/S	X
The western bumblebee is a habitat generalist and inhabits a wide variety of habitat types, associated with flowering plants. Recent surveys across the Wallowa-Whitman has found them to be distributed across multiple elevations and habitat types. No sightings have been documented within the project area but habitat and distribution indicates occurrence is likely.					
SUCKLEY CUCKOO BUMBLEBEE	*Bombus suckleyi*		SEN	D/H	x
This species of cuckoo bumblebee is a known parasite of colonies of *Bombus occidentalis* and as such is expected to inhabitat much of the same range as the western bumblebee. Surveys conducted on the Wallowa-Whitman from 2014-2018 only detected this species in two sites. The presence of floral montane resources in the project area indicate habitat is present.					
MORRISONI BUMBLEBEE	*Bombus morrisoni*		SEN	D/N	x
This species is known throughout the US Mountain West from CA east of the Sierra-Cascade Ranges to southern BC, in the Deset West and east to NM, TX and north to western SD (Williams et al. 2014). Surveys across the Wallowa-Whitman from 2014-2018 have not detected this species, however the presence of open, dry habitat within the project area makes suitable habitat potentially available.					

SEN = Sensitive.
[1]D = Documented occurrence, S = Suspected occurrence (USDA Forest Service 2009).
[2] K = Known to occur, S = Suspected to occur, H = Not known to occur, but habitat present, N = No habitat present and/or not present.

Methodology

In general, the analysis area is the same as the project area unless stated below for each species. For cumulative effects, past activities within the project area have been incorporated into the existing

condition descriptions below. Present and reasonably foreseeable future actions are described in Appendix D of the EA. Those actions which overlap in time and space with the Lower Fly project which would have a measurable cumulative effect on each of these species are described in the cumulative effects discussions below.

CANADA LYNX (*Lynx Canadensis*)

Habitat Information- Lynx occur in mesic coniferous forests that have cold, snowy winters and provide a prey base of snowshoe hare, their primary prey (Ruediger et al. 2000). Snow conditions and vegetation types are important factors in defining lynx habitat. Crusting or compaction of snow may reduce the competitive advantage that lynx have in deep, soft snow. The primary vegetation that contributes to lynx habitat is subalpine fir where lodgepole pine is a major seral species, generally between 4,000-6,500 feet elevation. Cool, moist Douglas-fir, grand fir, western larch, and aspen forests may also contribute to lynx habitat when interspersed with subalpine forests. Dry forest types (e.g., ponderosa pine, climax lodgepole pine) are not considered habitat.

Occurrence information- The Blue Mountains represent the southern extent of lynx distribution, which would explain the rarity of this species on the periphery of its range both historically and presently. The presence of lynx in Oregon in the late 1800s and early 1900s is documented by 9 museum specimens collected from 1897 to 1927 (McKelvey et al. 2000). Records after that are rare. Only 4 recent specimens are known, one from Wallowa County in 1964, one from Benton County in 1974, and one from Harney County in 1993 (McKelvey et al. 2000). Based on limited verified records, lack of evidence of reproduction, and occurrences in atypical habitat that correspond with cyclic highs, lynx are thought to occur in Oregon as dispersers that have never maintained resident populations. They are considered an infrequent and casual visitor by the state of Oregon (Ruediger et al. 2000).

The Forest conducted extensive winter track surveys for wolverine and lynx from 1991 to 1994, and no lynx tracks were found (Wolverine and Lynx Winter Snow Track Reports, 1991-92, 1992-93, 1993-94). Hair snares were used to survey for lynx, according to the National Lynx Survey, on the Forest during the summers of 1999-2001 and no lynx were detected.

Lynx habitat in northeastern Oregon is categorized as a “peripheral area”, meaning there is no evidence of long-term presence or reproduction that might indicate colonization or sustained use by lynx, but that it may enable the successful dispersal of lynx between populations or subpopulations. The Forest is considered “unoccupied” habitat because there has not been a verified lynx observation since 1999. “Occupied” habitat is defined as requiring at least 2 verified observations or records since 1999 on the Forest or evidence of lynx reproduction on the Forest.

Determination

There would be **No Effect (NE)** to the Canada lynx from this proposed project because this species is not considered present on the Forest (Wallowa-Whitman National Forest Lynx Strategy Letter April 19, 2007).

CALIFORNIA WOLVERINE (*Gulo gulo*)

On February 4, 2013, the U.S. Fish and Wildlife Service proposed to list the distinct population segment of the North American wolverine occurring in the contiguous United States, as a threatened species under the Endangered Species Act. On August 13, 2014, the USFWS withdrew its proposal to list the wolverine

under the Endangered Species Act. As a result of this action, the wolverine automatically returned to the R6 Sensitive Species list. On April 4th, 2016 the district court of Missoula, Montana overturned the USFWS decision to withdraw the proposal. The wolverine is now considered a candidate species again

Habitat Information- Wolverines in the southern portion of their range utilize high-elevation alpine portions of Washington, Idaho, Montana, Wyoming, Oregon and Colorado. They do not appear to need specific vegetation or geologic habitat features, but instead select for areas that are cold and receive enough winter precipitation to reliably maintain deep persistent snow into the warm season. In the contiguous United States, valley bottom habitat appears to be used only for dispersal movements and not for foraging or reproduction (Federal Registrar 2013).

Wolverines are not thought to be dependent on vegetation or habitat features that may be manipulated by land management activities. They have been documented using both recently logged areas and burned areas. It is unlikely that wolverine avoid the type of low-use roads that generally occur in wolverine habitat (Federal Register 2013). Additionally, the scale at which most land management decisions (including Forest Service vegetative management activities) occur is relatively small compared to the average size of a wolverine home range and although impacts to individual animals may occur, they do not rise to the level to be a threat to the population (Federal Register 2014). While there are no definitive effects currently known at the population level, there are on-going scientific investigations to better understand potential recreational impacts to wolverine.

Occurrence information- Adjacent wilderness areas including the Eagle Cap and North Fork John Day Wilderness are the nearest potential natal denning sites. There are no known den sites on the Forest (USDA Forest Service 2009). The Forest conducted extensive winter track surveys for wolverine and lynx from 1991 to 1994, and no wolverine tracks were found. (Wolverine and Lynx Winter Snow Track Reports, 1991-92, 1992-93, 1993-94). Surveys conducted on the WWNF during the winter of 2010/2011 detected 3 different wolverines, one of which was located in the southern Wallowa Mountains, northeast and across the valley from the Lower Fly project area.

Direct and Indirect Effects

Alternative 1 - There will be no direct impacts to wolverine from the No Action Alternative because no stream restoration, or transportation activities will occur.

Alternative 2 - The lack of lingering snowpack within the project area and low elevation minimizes the potential for wolverine denning. Forays into the project area would be more likely during the winter when human presence decreases due to snow, and potential food sources such as large ungulates move to lower elevations. Small tree thinning activities, if conducted during the winter, could impact local presence and pattern of wolverine via disturbance, but impacts would be temporary.

Determination

There would be **No Impact (NI)** to the wolverine from this project due to a lack of effects resulting from management activities.

COLUMBIA SPOTTED FROG (*Rana luteiventris*)

Background Information - This species is found at aquatic sites in a variety of vegetation types, from grasslands to forests (Csuti et al. 1997). It is highly aquatic and is usually near cool, permanent, quiet water. It is found in marshes, wet meadows, permanent ponds, lake edges, and slow streams with non-woody wetland vegetation, but may move considerable distances across uplands after breeding (Stebbins

1985, Corkran and Thoms 2006). Breeding occurs in shallow water at pond edges, stream margins, and inundated floodplains. Egg masses are free-floating and tadpoles live in the warmest parts of the water. Springs, ponds, and backwaters may be used as over-wintering sites for local populations of spotted frogs (Hayes et al. 1997).

The Columbia spotted frog occurs locally in eastern Oregon (Csuti et al. 1997). A study conducted from 1997-2004 in northeastern Oregon found that the frog is widely distributed throughout northeastern Oregon where permanent ponds and rivers or creeks occur, and that although populations are generally not large, numerous small ones occur, particularly when connected by flowing water (Bull 2005).

Existing Condition

Instream habitat and riparian areas have been changed from historical conditions due to many activities that have occurred over the years. The project area does not have any recorded breeding ponds but breeding ponds are known along other reaches of Fly Creek and adult frogs have been documented within the project area. Egg mass counts along the Grande Ronde River indicate the population is stable, however in recent years it has been observed that breeding ponds contain less water than in the past.

Direct and Indirect Effects

Alternative 1 - Under alternative 1, the project area would continue to provide habitat for the spotted frogs into the near future.

Alternative 2- Instream work has the potential to directly negatively impact adult frogs through mortality from project activities and potential destruction of unknown breeding ponds. Indirectly, restoration activities have the potential improve spotted frog habitat by deflecting water into the floodplain for groundwater storage, off channel habitat, and increasing pooling habitat. However, there is little data beyond anecdotal to speak to the positive benefits of this particular type of stream restoration on frogs and the issue needs further study.

Cumulative Effects

Alternative 1 - There are no cumulative effects from selecting this alternative. Any changes that would occur over time as a result of selecting this alternative simply reflect the evolving baseline conditions for the area.

Alternative 2- Past activities that have affected spotted frog habitat include grazing, fire suppression and logging and have been incorporated into the existing conditions. Ongoing and future livestock grazing is expected to be maintained at the current level and research has shown it to have minimal effect on suitable habitat. There are multiple stream restoration projects, within the Grande Ronde Watershed, that are expected to be implemented in the foreseeable future that would impact spotted frog habitat (5125 road relocation, Woodlee stream restoration Sheep Creek restoration, Limberjim restoration). These projects are expected to add to positive cumulative effects of spotted frog habitat across the forest, however there is little evidence besides anecdotal to the impacts of stream restoration on spotted frogs and the exact benefits are hard to quantify without additional monitoring.

Determination

In the short term, it is expected that this project may impact individuals or habitat but will not likely cause a trend toward Federal listing or a loss of viability of the population or species (**MIIH**) medium to long term, the action alternative would have a Beneficial Impact (**BI**) to the spotted frog by providing more breeding habitat.

SHINY TIGHTCOIL (*Pristiloma wascoense)*

Pristiloma wascoense is ranked as S2 (Imperiled) in Oregon and (ORBIC 2016). It is a terrestrial pulmonate snail originally collected from Wasco County in Oregon (Hemphill 1911).

Habitat Information- The species has been reported from ponderosa pine and Douglas-fir forested habitat at high elevations, as well as from moist, shaded talus habitat with deciduous trees; moist microsites associated with talus or riparian habitat may be typical for members of the genus (Jordan 2010). Burke (2013) notes the species may often be found in the vicinity of deciduous trees such as aspen. Associated mollusks include Anguispira kochi, Cryptomastix mullani, Euconulus fulvus, Punctum randolphi, and Discus whitneyi (Frest and Johannes 1995, Jordan 2010).

Occurrence information- This species is reported from many widely separate (but often imprecise) historic locations. It is known from the Washington and Oregon Cascades (Branson 1977, Frest and Johannes 1999, Branson 1980). It is also reported from the Blue Mountains in Oregon (Wallowa Valley above Wallowa Lake in Wallowa County) and from several counties in Idaho (Washington, Adams, Boise, and Shoshone) (Pilsbry 1946, Frest and Johannes 1999). There is no record of *pristiloma wascoense* within the project area but recent surveys within the La Grande ranger district found *Pristiloma wascoense* on a third of all sites where terrestrial mollusks were encountered (Blevins et al 2016).

Threats- Activities that compact soils or snow, disturb ground vegetation and/or litter, remove woody debris, alter temperature and/or humidity of the microsite, reduce canopy cover, or alter the water table could be deleterious to the habitat of *Pristiloma* species (Gowan and Burke 1999). These activities include livestock grazing, timber activities, recreational activities, mining activities, heavy equipment operation, water diversions and improvements, and construction operations (Gowan and Burke 1999).

EFFECTS ANALYSIS

Alternative 1 - There will be no direct impacts from the No Action Alternative because no stream restoration, or transportation activities will occur.

Alternative 2- Proposed activities that reduce canopy cover can result in increases in microclimate extremes, changes in forest vegetation and litter, soil compaction and population fragmentation. Tree and boulder placement along riparian areas using machinery has the potential for direct mortality for any mollusk species within the area of project activities. Restoration activities are anticipated to increase water availability and hardwood components on the floodplain. However, many of these anticipated effects (positive and negative) have not been fully studied on terrestrial mollusks.

Determination

Project activities will disturb ground vegetation and litter, remove woody debris and reduce canopy cover at a small scale. It is expected that this project may impact individuals or habitat but will not likely cause a trend toward Federal listing or a loss of viability of the population or species (MIIH).

THINLIP TIGHTCOIL (*Pristiloma idahoense)*

Pristiloma idahoense is ranked as S2 (Imperiled) in Oregon and (ORBIC 2016). It is the only imporformate low conic *Pristiloma* species found in the Idaho Panhandle and northeastern Washington (Burke and Leonard 2009).

Habitat Information- This species is somewhat mesophilic, generally occurring at rather low elevations in ponderosa pine (*Pinus ponderosa)* and Douglas fir (*Pseudotsuga menziesii*) forests (Frest & Johannes 1995), as well as in cedar (*Cedrus*) and hemlock (*Tsuga*) forests (Burke 2009, *pers. comm.*). In general, moist valley, ravine, gorge, or talus sites are preferred, *i.e.* low on a slope and near permanent or persistent water, but not normally subject to regular or catastrophic flooding (Frest & Johannes 1995). Persistence of moisture for at least part of the year increases habitat suitability (Frest & Johannes 1995). The type locality in Oregon is an almost vertical lava exposure overgrown with dry moss, ferns and scattered bushes, below a north-facing slope with Douglas fir (*P. menziesii*) and only a few feet from a practically dry creek bed (Baker 1932).

Occurrence information- In Washington and Oregon, this species is suspected on Vale and Spokane District BLM land, and on Colville and Umatilla National Forests, based on proximity to known records. The historic Idaho range includes sites that are currently in Payette, Nez Perce, Clearwater, and the Idaho Panhandle National Forests (Frest & Johannes 1997). According to Frest & Johannes (1995), population trends (in number of sites and number of individuals) are certainly downward. Specific abundance estimates are not well known. Recent surveys on the Wallowa-Whitman and Umatilla NF found *Pristiloma idahoense* occupying a limited number of sites.

Threats- Activities that compact soils or snow, disturb ground vegetation and/or litter, remove woody debris, alter temperature and/or humidity of the microsite, reduce canopy cover, or alter the water table could be deleterious to the habitat of *Pristiloma* species (Gowan and Burke 1999). These activities include livestock grazing, timber activities, recreational activities, mining activities, heavy equipment operation, water diversions and improvements, and construction operations (Gowan and Burke 1999).

EFFECTS ANALYSIS

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Cumulative effects- Past events that affected potential mollusk habitat include grazing, fire suppression, logging and road building andhave been incorporated into the existing conditions. Present and proposed activities within the project area with a potential to affect terrestrial mollsusks are continuation of the current level of livestock grazing. There would be no cumulative effects from selecting these alternatives because the potential direct and indirect effects would be limited to the time and location of project implementation.

Determination

Project activities will disturb ground vegetation and litter, remove woody debris and reduce canopy cover at a small scale. It is expected that this project may impact individuals or habitat but will not likely cause a trend toward Federal listing or a loss of viability of the population or species (MIIH).

WESTERN BUMBLEBEE(*Bombus occidentalis*), **SUCKLEY CUCKOO BUMBLEBEE** (*Bombus suckleyi*), **MORRISONI BUMBLEBEE** (*Bombus morrisoni*)

Many North American bumblebee species have undergone severe declines in recent decades (Cameron et al. 2011; Hatfield et al. 2014). Range losses have been documented for several species, including the western bumble bee (*Bombus occidentalis*), the suckley cuckoo bumblebee (*Bombus suckleyi*), the Morrisoni bumblebee (*Bombus morrisoni*) and 27% of bumble bee species in the US and Canada are listed in an extinction risk category by the International Union for Conservation of Nature (IUCN) (Hatfield et al. 2014).

Habitat Information- Bumble bees inhabit a wide variety of natural, agricultural, urban, and rural habitats, although species richness tends to peak in flower-rich meadows of forests and subalpine zones. Relatively recent changes in land usage have compromised this habitat, putting pressure on bumblebee populations. In addition to habitat loss and fragmentation, overgrazing, climate change, pesticide use, competition with honey bees, and the introduction of nonnative pathogens are all thought to contribute to the population decline of all North American bumblebees.

Occurrence Information- Historically *B. occidentalis* and *B. suckleyi* were found from the Pacific coast to the Colorado Rocky Mountains, but have seen severe population decline west of the Sierra-Cascade Crest. In Oregon, this species has been documented on Deschutes, Fremont-Winema, Malheur, Mt. Hood, Ochoco, Rogue River-Siskiyou, Siuslaw, Umatilla, Umpqua, Willamette, and Wallow-Whitman National Forests, and BLM land in the Burns, Lakeview and Medford Districts. Given the relatively recent range contraction for these species, it is unknown what the current "Documented" status is for many of these field units, as many of the documented sites are considered historic. Surveys conducted on the La Grande district 2014-2015 found *B. occidentalis* to be low in abundance, but present at about 50% of the surveyed sites. These same surveys only located *B. suckleyi* in two locations.

Threats- There are a number of threats facing bumble bees which include; the spread of pests and diseases by the commercial bumble bee industry, other pests and diseases, habitat destruction or alteration (agriculture, urban development, grazing), pesticides and invasive species. Specific to managed Forest Service lands, the invasiveness and dominance of native grasslands by exotic plants may threaten bumble bees by directly competing with the native nectar and pollen plants that they rely on. In the absence of fire, native conifers encroach upon many meadows, which removes habitat available to bumblebees. Apiaries put on National Forest land may compete with native pollinator species, putting additional stress on individuals (Hatfield et al. 2018).

Direct and Indirect Effects

Alternative 1 - There will be no direct impacts from the No Action Alternative because no stream restoration, or transportation activities will occur.

Alternative 2- Removal of trees can increase gaps in the canopy which can facilitate positive understory plant diversity and cover, helping to increase food resources. Restoration activities that encourage shrub growth and recruitment will provide important foraging habitat for pollinator species.

Cumulative effects- Past events that affected potential bumblebee habitat include grazing and fire suppression and have been incorporated into the existing conditions. Present and proposed activities within the project area with a potential to affect the Western bumblebee are continuation of the current level of livestock grazing and prescribed burning. There would be no cumulative effects from selecting these alternatives because the potential direct and indirect effects would be limited to the time and location of project implementation.

Determination- ***Common to all alternatives-*** The alternatives **May Impact Individuals or Habitat (MIIH)** but would not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species.

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